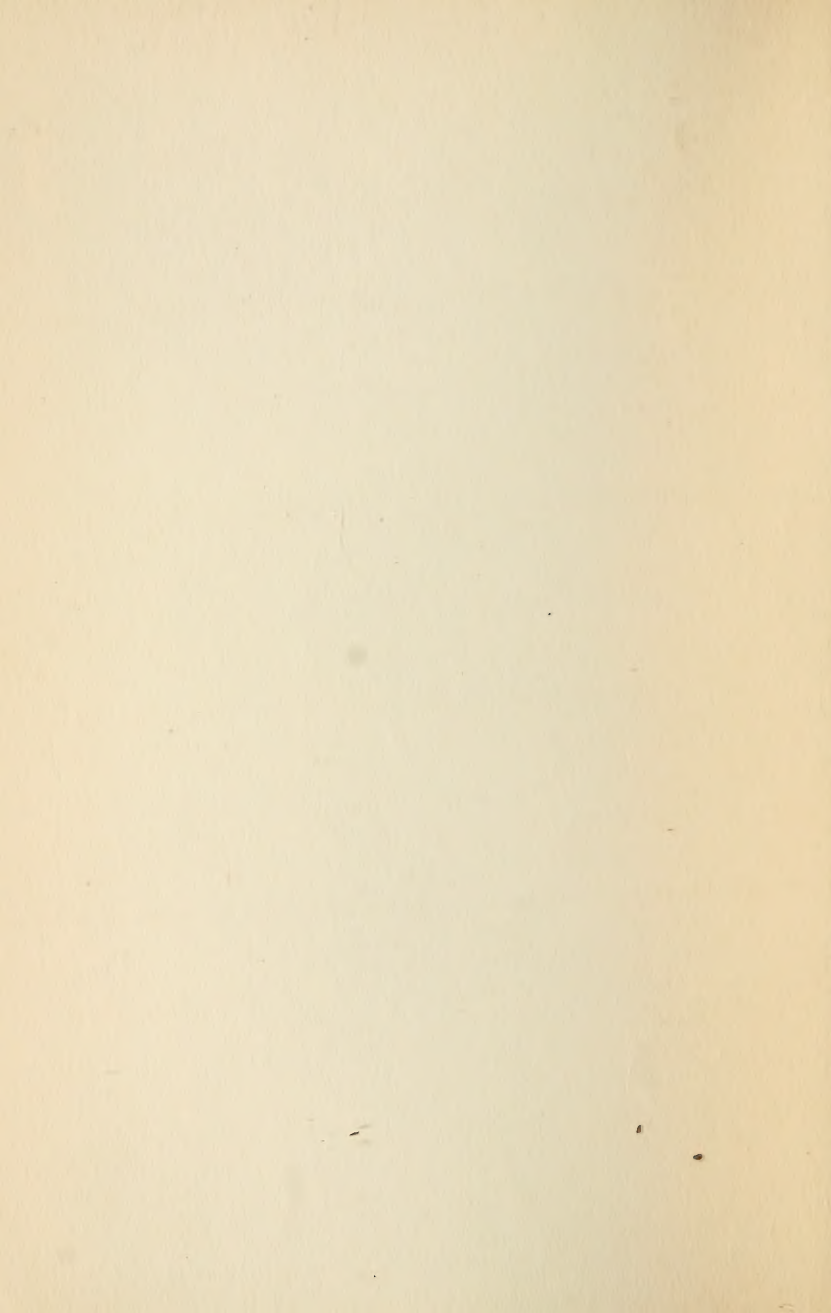




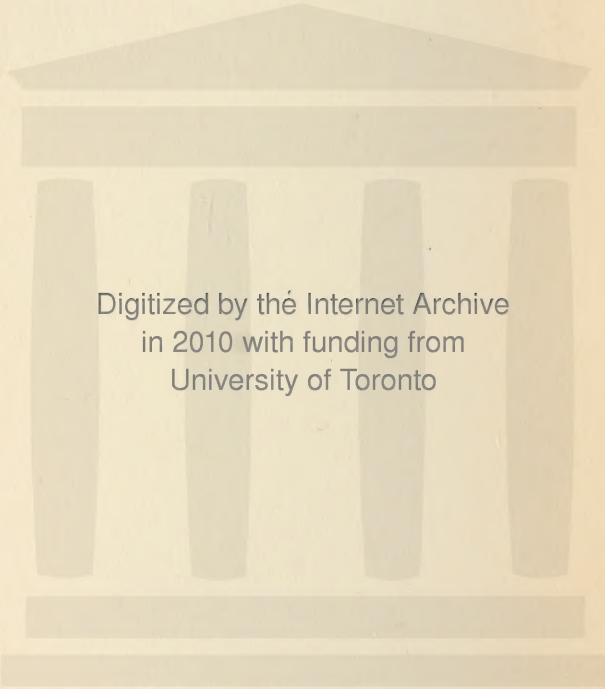
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SCHOOL EFFICIENCY MONOGRAPHS

MAKING
HIGH SCHOOL
PROGRAM
RICHARDSON



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MAKING A HIGH SCHOOL PROGRAM

BY
MYRON W. RICHARDSON
HEADMASTER GIRLS' HIGH SCHOOL
BOSTON, MASSACHUSETTS



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PREFATORY NOTE

THE public is devoting more and more of its treasure to the school, particularly to the high school. The high school principal has a responsibility for the economy and efficiency of his school organization. Care and economy mean more funds for education. We might raise salaries on what is now wasted. In industry, with rising labor costs has come greater attention to individual economies. The school cannot escape the tendency. Does the high school principal know whether or not he is getting full efficiency from his organization? Is the work evenly divided? Are teachers overworked or underworked? Are pupil divisions evenly constructed? Are program difficulties solved? The high school principal needs in his equipment the engineer's capacity. He is an educational engineer. The high school program, indeed, is an engineering problem. No system of making a high school program on the trial-and-error method is defensible. From mathematical reasons it must be faulty. No purely mechanical method of making a program is adequate, for the result is wrong and the pupils and teachers are the necessary victims. A high school program must be scientifically constructed if it is to be accepted as adequate to the situation presented. Poor high school programs are responsible today for great waste of money in the employment of unnecessary teachers, in the uneven distribution of work, in preventing pupils' range of choice of subjects, and in unnecessary worry and confusion throughout the organization. The professionally trained high school principal can easily find a way out of the program difficulties. The struggle against this universal problem has developed some program geniuses, and their discoveries are not esoteric but open and free to those who wish to adopt their ideas.

PREFATORY NOTE

For a number of years past I have been aware of the splendid work in the way of program making which has been carried on by Mr. Myron W. Richardson, Headmaster of the Girls' High School of Boston. Gradually the method of high school program making evolved by him has spread throughout our Boston school system, and in fact has extended to other communities in Massachusetts, and even beyond the confines of the state. The following exposition of Mr. Richardson's contains the necessary information to enable a high school administrator to make an effective high school program. I am personally convinced of the truth of this prophecy by reason of our experience in the city of Boston and further from my individual experience as a lecturer upon high school administration, in Columbia University. To the students enrolled in my course on high school administration I presented the material of Mr. Richardson's plan, and found invariably that the students were able to take their individual high school organizations and make an effective program upon the block system proposed by him. Personally I am glad that he has found time to put his system into definite shape, and believe that he has made a distinct contribution to the general problem of educational engineering.

FRANK V. THOMPSON

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MAKING A HIGH SCHOOL PROGRAM

I

INTRODUCTION

WHILE every high school program is so dependent upon local conditions of one kind or another as to be very much of an individual problem, yet there are certain fundamental considerations that underlie all program making. This book is an attempt to set forth these fundamental considerations. It uses for illustrative purposes the steps followed in making the program of the Girls' High School of Boston, a school of 2100 pupils, but the type of program and the method of procedure outlined here have been applied successfully to high schools ranging in size from 200 to 2000; to high schools with fixed courses of study, and to those with a large amount of freedom in election; to high schools with programs made up largely of academic work, and to those with much shop or industrial work.

Every high school has its own limitations and peculiarities which are inseparably associated with the school program. Thus the number and seating capacity of rooms has a direct and important relation to the size of recitation sections and study rooms; the personnel of the teaching force, particularly in a small high school, determines when and where subjects may be taught; and the different courses of study make special demands upon the school program. These local limitations may necessitate change in many of the details of the plan which has been outlined in this book, but the general method of procedure can be followed in all high schools, and there will be found much here that can be applied to all high school programs.

II

PRELIMINARY INFORMATION

SELECTION OF WORK BY PUPILS

THE first step in making a high school program is to find out what studies each pupil desires to select for the ensuing school year. The first week in May is set apart for this purpose. The task is one of great importance, requiring time and careful attention.

The pupil is given a printed blank, headed Selection of Studies, upon which to indicate his choice of work, and a printed copy of the course of study offered in the school. The selection of studies blank, a copy of which follows, lists all the subjects taught in the school, and gives information about them in four columns. The first column tells in what year the subject may be first chosen, the second the number of consecutive years of instruction, the third the year of the subject desired by the pupil, and the fourth its value in diploma points. The blank also contains general directions for selection of work and a space for the parent to express his approval of the choice of work.

The objection may be raised that the first week in May is too early to secure this information, because the year's work is not yet completed, and the pupil is uncertain whether or not he is going to pass. In reply it may be said that his record for eight months is known, and upon this and the advice of his subject teachers can be based his choice of work for the ensuing year. Some adjustments of individual programs must of necessity be made in September in accordance with final marks in June; but in the long run the losses will offset the gains, and the difference will not be sufficient to affect the number of classes.

Upon the opening day of the first week in May pupils of

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the three lower classes are called to the assembly hall by classes, at which time the courses of study are explained to them by the principal and by teachers whom he may select for this purpose. This requires from 30 to 45 minutes to a class, and is the only interruption of the school session that is found necessary. Home-room teachers accompany their pupils to the assembly hall to listen to the instructions and explanations, so that later they may assist their pupils intelligently in the selection of studies for the next year.

At least one week is allowed the pupil for the completion of this task of selecting his next year's subjects, during which time he may get needed advice from his teachers. His home-room teacher finally inspects the blank and approves with his signature the selection made. Often other approving signatures are required; thus, a college pupil is required to get the signature of the college adviser for the particular institution which he is preparing to enter.

A similar procedure is followed with pupils from the elementary or junior high schools who intend to enter the high school the following September.

TABULATION OF SELECTION BLANKS AND SUMMARY SHEET

Upon a tally sheet containing a list of all subjects and years of subjects each home-room teacher furnishes the principal with a tabulation of subjects and years of subjects chosen by the pupils in his room. With a tally sheet of proper form, selections may be tabulated as fast as they come in, and but little time will be needed to add up the totals.

Upon a specified date not later than the middle of May, the home-room teacher sends to the principal all the pupils' selection of studies blanks, with the tally sheet.

SELECTION OF STUDIES

BLANK B

Name.....		Room.....		Course.....	
1	1	Introductory Science.....	.....	.....	Total Points
1	2	Biology.....	.....	.....

* Use Roman numerals in this column.

General Directions

- A.

Every pupil's election of work, unless special exception has been made by the Head Master, must include all the prescribed studies, and a sufficient number of elective studies to amount all told to not less than twenty nor more than twenty-four points each year.
- B.

A diploma is awarded to pupils who have won eighty points, which must include: (1) eight points in physical training, (2) one point in hygiene, (3) at least twelve points in English, (4) at least seven points in the same foreign language or in phonography and typewriting, (5) at least four points in mathematics or bookkeeping (6) at least three points in history, (7) at least three points in science.

I approve the above selection of studies for the school year 19

to 19

.....

Parent's Signature

SELECTION OF STUDIES BLANK B

Name.....Room.....Course.....

PRESCRIBED STUDIES					ELECTIVE STUDIES (Continued)				
YEAR FIRST ELEC- TIVE	LENGTH OF COURSE IN YEARS	STUDY	*YEAR OF STUDY	POINTS	YEAR FIRST ELEC- TIVE	LENGTH OF COURSE IN YEARS	STUDY	*YEAR OF STUDY	POINTS
1	4	English.....	.....	.....	3	1	Physiology.....	.....	.....
1	4	Physical Training (girls).....	.....	.....	2	2	Physics.....	.....	.....
1	4	Military Drill (boys).....	.....	.....	3	2	Chemistry.....	.....	.....
1	1	Hygiene.....	.....	.....	4	1	Physical Geography.....	.....	.....
ELECTIVE STUDIES					1	4	Bookkeeping.....	.....	.....
					3	2	{ Phonography..... { Typewriting.....	.....	.....
1	4	Choral Practice.....	.....	.....	2	1	Commercial Geography.....	.....	.....
1	4	History.....	.....	.....	3	1	Commercial Law.....	.....	.....
1	1	Civil Government.....	.....	.....	4	1	Civil Service.....	.....	.....
4	1	Economics.....	.....	.....	1	4	Drawing.....	.....	.....
1	4	Latin.....	.....	.....	1	3	Music.....	.....	.....
2	3	Greek.....	.....	.....	1	4	Manual Training.....	.....	.....
1	4	French.....	.....	.....	3	1	Household Science and Arts	.....	.....
1	4	German.....	.....	.....	3	1	History of Commerce and Industry.....	.....	.....
1	3	Spanish.....	.....	.....	3	2	Salesmanship.....	.....	.....
1	4	Mathematics.....	.....	.....	Total Points				
1	1	Introductory Science.....	.....	.....			
1	2	Biology.....	.....	.....			

* Use Roman numerals in this column.

General Directions

- A.** Every pupil's election of work, unless special exception has been made by the Head Master, must include all the prescribed studies, and a sufficient number of elective studies to amount all told to not less than twenty nor more than twenty-four points each year.
- B.** A diploma is awarded to pupils who have won eighty points, which must include: (1) eight points in physical training, (2) one point in hygiene, (3) at least twelve points in English, (4) at least seven points in the same foreign language or in phonography and typewriting, (5) at least four points in mathematics or bookkeeping, (6) at least three points in history, (7) at least three points in science.

I approve the above selection of studies for the school year 19 to 19

.....
Parent's Signature

PRELIMINARY INFORMATION

Upon a properly arranged summary sheet the data from the tally sheets can be collected by the principal in a very short time, and he then has complete returns for the entire school, showing the number of pupils desiring each subject, and each year of the subject.

By keeping a record from year to year of the returns on the summary sheet and also a record of the number of pupils who enrolled in the various classes each September, the principal can easily forecast in May the number of classes in each subject for the following September. The percentage of change under uniform conditions from May to September is very nearly a constant from year to year. Changes of electives in September are allowed only for good and sufficient reasons.

CLASS SECTIONS

The pupils' selection of studies sheets are separated into four classes of the school course (first year, second year, etc.), and each class is again subdivided into equal-sized divisions of from 30 to 40 pupils, known as class sections. Each class section is indicated by an arabic numeral and a letter, the arabic numeral indicating the class and the letter the section. Thus 2 *b* means *b* section in the second, or sophomore, class, and 4 *c* means the *c* section of the fourth, or senior, class.

Class sections then are equal-sized class groups of from 30 to 40 pupils each, segregated for general recitation purposes. Since each class section is a different group of pupils, any sections may recite at the same time without program conflict. It will be seen later how this preliminary division into class sections is used to avoid conflicts in pupils' programs, and how the fact that they are equal-sized tends to make recitation sections also of equal size.

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A list of the class sections for the sophomore class of a Boston high school will serve as an example of this step:

CLASS SECTIONS — CLASS 2

- 2 *a* College pupils through Milston
- 2 *b* College pupils from Milston through alphabet
Normals through Leonardi
- 2 *c* Normals from Leonardi through alphabet
Generals
- 2 *d* Commercials, French, through Canter
- 2 *e* Commercials, French, from Canter through De Angelis
- 2 *f* Commercials, French, from De Angelis through Gardner
- 2 *g* Commercials, French, from Gardner through Hurley
- 2 *h* Commercials, French, from Hurley through MacLeod
- 2 *i* Commercials, French, from MacLeod through Post
- 2 *j* Commercials, French, from Post through Slattery
- 2 *k* Commercials, French, from Slattery through alphabet
- 2 *l* Commercials, Spanish, through Ferrari
- 2 *m* Commercials, Spanish, from Ferrari through Katz
- 2 *n* Commercials, Spanish, from Katz through Puccinelli
- 2 *o* Commercials, Spanish, from Puccinelli through alphabet
- 2 *p* Commercials, Latin or No Language

It will be noticed that class sections offer opportunity to segregate pupils of like destination or like program. Thus all college pupils are placed in sections *a* and *b*, normal school pupils in *b* and *c*, pupils taking a general course in section *c*, and pupils taking a commercial course in sections *d* to *p*. The commercial pupils are subdivided according to the language they take, pupils in section *d* taking Latin or no language. Such segregations offer opportunity to meet individual needs of pupils. The larger the school, the greater the possibilities of differentiation. Thus, if it is desired to separate the abler and the less able pupils of the class, the one group may be assigned to specified sections and the other to other sections.

RECITATION SECTIONS

After the number of pupils for each subject and year of subject has been ascertained by the principal, and the number of recitation sections of each kind has been determined (page 3), these recitation sections are designated in such a way as to avoid conflicts in pupils' programs.

First: For all continuous subjects a roman numeral is used to indicate the year of instruction; thus French II means a year's work in second-year French. Note that the roman numeral does not necessarily indicate the class from which come the pupils who take the subject; e.g., Phonography I means the first year of phonography, but inasmuch as phonography is not offered as an elective until the third year of the course, the roman numeral "I" does not indicate pupils from Class 1 — that is, the freshmen class. If the subject is not a continuous one, no roman numeral at all will be used.

Second: Section letters will be used to indicate the class sections from which the recitation section derives its pupils; thus French II *d* means a class in second-year French made up of pupils from section *d* of the class in which the subject is offered. If there be but one recitation section of a kind, the recitation section will be known by the designation of the subject.

Often a subject may be elected by pupils from more than one class section. In this case, more than one section letter will be used. Thus, Latin III *ab* means a class in third-year Latin made up of pupils from class sections *a* and *b*. Choral Practice II *adfhk* means a large class in the second year of Choral Practice made up of pupils from five different class sections.

Every large school has advanced recitation sections of one kind or another. For example, college pupils begin

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the study of Latin in the first year, but defer beginning French until the second year. Many pupils fail in their first year of French, and elect it again in their second year. Still other pupils, for one reason or another, may not begin the study of French until the third or fourth year. All such advanced sections should be designated by an additional numeral which indicates the class from which the pupils come. Thus French I-2*a* means a class in first-year French, normally a freshman subject, made up of second-year pupils from class section *a*; French I-2*defghk*, a class in first-year French of second-year pupils who are repeating French I, derived from six class sections. It takes a large number of class sections to furnish a sufficient number of pupils to form such a recitation section. It will be seen later (page 14) how such a method of designation avoids conflict in pupils' programs.

III

MAKING THE SCHOOL PROGRAM

THE BLOCK SYSTEM

EVERY high school program should use some kind of block system; that is, the recitation periods of the week should be divided into a number of different groups or blocks, and in one or the other of these blocks should be scheduled all recitations in the school. If each of the blocks is made up of a different group of periods, it is evident that recitations scheduled in one block cannot conflict with recitations scheduled in any other block.

The most commonly used block consists of five periods, one for each day in the week, and the most usual method of selecting periods to form such blocks is to call the first period of each of the five school days in the week "Block 1," the five second periods "Block 2," etc. With such an arrangement, there will be as many blocks as there are school periods in the day.

While such a selection may give a more orderly distribution of recitations, it is not in many ways an ideal arrangement. It is generally conceded that the quantity of work that can be accomplished with a recitation section that recites always in the first period of the day is considerably greater, and the quality better, than with one that recites always in the last period of the day. Moreover, the last periods of the day are often needed for field or laboratory work which may take the pupil outside the building. For these and other reasons, a selection which gives an equal distribution of early and late periods of the day among the different blocks is preferable to one which fails to make such a distribution.

On page 11 is a distribution of this kind for a six-block program.

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The block numbers are indicated by the numeral in the upper right-hand corner of the period. Thus Block 1 is made up of Monday, the 1st period, Tuesday, the 5th, Wednesday, the 3d, Thursday, the 2d, and Friday, the 6th period; Block 2 is made up of Monday, the 2d period, Tuesday, the 6th, Wednesday, the 4th, Thursday, the 1st, and Friday, the 5th period, etc. By adding together the numbers which express the periods of the day for each block, it is found that Blocks 1, 3, and 5 total 17, while Blocks 2, 4, and 6 total 18, thus showing a nearly equal distribution of early and late periods of the day in each block. If the block numbers are indicated on the program blank, it is no more difficult to find them, in making a pupil's program, than it would be if they came in regular order.

It will be noticed that in the distribution given, the periods of Block 1 are always contiguous to Block 2, those of Block 3 to Block 4, and those of Block 5 to Block 6. This arrangement will be found helpful in providing for double periods for laboratory or industrial work, or for such subjects as phonography and typewriting.

To give necessary flexibility, a pupil's program should have at least one free block. Most high school pupils carry a program of from 20 to 25 recitation periods a week, which would occupy four or five blocks, and a six-block program best meets their program requirements.

It is very important that the same block system extend throughout all the years of the school. Under such an arrangement the pupil with an irregular program will always have one or more empty blocks in which to find his "out-of-course" subjects.

DISTRIBUTION OF RECITATION SECTIONS

To distribute the recitation sections among the blocks is the most difficult and the most important part of pro-

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	MON.	TUES.	WED.	THUR.	FRI.
1st PERIOD	1	3	5	2	6
2d PERIOD	2	4	6	1	5
3d PERIOD	3	5	1	4	4
4th PERIOD	4	6	2	3	3
5th PERIOD	5	1	3	6	2
6th PERIOD	6	2	4	5	1
7th PERIOD					

gram making. Upon its successful accomplishment, more than upon anything else, depends the efficiency of the program. It is affected by so many factors — courses of study, personnel of the teaching force, size and number of rooms, and other conditions of a local nature that have already been referred to — that it is difficult to formulate in detail any course of procedure that could be generally followed. It is possible, however, to set forth certain important principles.

(1) Work with one of the four classes at a time in distributing recitation sections among the blocks, since each class presents problems of its own. When the distribution is completed, each block will be made up of four strata of recitation sections, a stratum for each class in the school.

High schools with semi-annual promotions will need to distribute their programs by half years, each block being made up of eight strata, one for each half year, instead of four. Such a distribution seriously affects the organization of a school and decreases the efficiency of the program. The larger the high school, the greater the possibility and opportunity of its program to serve the interests of its pupils. The program of a school of 1000 pupils arranged in 8 classes has little or no greater flexibility or efficiency than that of a school of 500 in 4 classes; that of a school of 500 in 8 classes, no greater than that of a school of 250 in 4 classes.

(2) In distributing recitation sections of like kind, follow the plan of widest distribution; that is, never schedule two sections of a kind in a block until every other block has one, never three until every other block has two, etc. Not only does this plan make for flexibility in the pupil's program, but in large high schools it removes the necessity of giving very much attention to the assignment

of work to teachers until the entire distribution is completed.

(3) When there is but one recitation section of a kind, avoid scheduling two such sections in a block unless they are non-conflicting by nature; thus, sections in Latin are not likely to conflict with commercial sections, and sections in different years of the same subject are by nature non-conflicting.

(4) To help in avoiding conflicts, do not repeat the section letters of a given class in the same block. Below will be found two groups of recitation sections which occur in the same block — one a group of second-year, and the other a group of first-year, recitation sections.

By looking through the section letters in each class from which these recitations are recruited, it will be seen that there is no repetition of section letters within the group, except for Physical Training II and for Hygiene. These two subjects are scheduled for but one day in the week in the block, and the subject whose section letter they repeat recites the other four days, and does not therefore conflict; e.g., in Physical Training II *cdkm* and French II *k*, the section letter *k* is repeated, but the Physical Training II section is scheduled only for Monday, and the French II section only for the other four days of the week.

If, then, each section letter represents, as it does, a different group of pupils, and no section letter is repeated in the block, there can be no possible conflict of program. This device for avoiding conflict within the block can be very generally applied in the two or three lower classes in the school, but only with greater difficulty in the junior and senior classes, because in these classes there is increasing differentiation in the choice of work, hence impossibility at times of avoiding repetition of section letters.

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SUBJECTS	BLOCK 3	CLASS 2
	Section	Days
Phys. Trg. II	<i>cdkm</i>	M
Phys. Trg. II	<i>bejo</i>	Th
English II	<i>f</i>	T W Th F
English II	<i>l</i>	M T W F
English II	<i>p</i>	T W Th F
Civics -2		M T Th
Latin I-2, 3, 4		all
French I-2	<i>a</i>	all
French II	<i>e</i>	M T W F
French II	<i>k</i>	T W Th F
Biology I	<i>io</i>	M T W F
Introd. Science	<i>d</i>	T W Th F
Introd. Science	<i>g</i>	M T W F
Bookkeeping II	<i>h</i>	all
Bookkeeping II	<i>n</i>	all
Com'l Geog.	<i>m</i>	T W Th
Com'l Geog.	<i>j</i>	M T F

SUBJECTS	BLOCK 3	CLASS 1
	Section	Days
Phys. Trg. I	<i>flr</i>	W F
Hygiene	<i>flk</i>	T
English I	<i>a</i>	all
English I	<i>g</i>	all
English I	<i>m</i>	all
English I	<i>s</i>	all
French I	<i>d</i>	all
French I	<i>p</i>	all
Spanish I	<i>j</i>	all
Civics	<i>b</i>	M W F
Civics	<i>h</i>	T W Th
Civics	<i>n</i>	Th
Civics	<i>t</i>	M F
Mathematics I	<i>c</i>	all
Bookkeeping I	<i>i</i>	all
Bookkeeping I	<i>o</i>	all
Bookkeeping I	<i>n</i>	all

MAKING THE SCHOOL PROGRAM

For the two lower classes the device may be 100 per cent efficient; in the senior class, perhaps not more than 75 per cent efficient.

There are, then, in a program so arranged, two devices for avoiding conflict: (1) the six or more non-conflicting blocks, which may be characterized as a horizontal variable, and (2) the section letters, which may be called a vertical variable. With two variables of this kind, there will be a very large number of solutions for nearly all pupils' programs that may be submitted, and a consequent high percentage of flexibility and efficiency.

ASSIGNMENT OF TEACHERS AND ROOMS TO RECITATION SECTIONS

In a large school, assignment of teachers and rooms need not be made until after the recitation sections have been distributed among the blocks. In small high schools one of the local factors that must be considered in making this distribution is the teacher's program. In all high schools, however, if the plan of widest distribution is followed as regards subjects and sections, the problem of assigning teachers and rooms to recitation sections ought not to be a difficult one. The complete application of this plan means an equal, or nearly equal, number of recitation sections in every block, and a consequent uniform distribution of the work throughout the week. The standard number of teaching periods for Boston is 22 a week for women and 24 for men. In a school program of six blocks or more, every teacher will have, therefore, one or more blocks wholly or partly free. This arrangement ought to give sufficient flexibility to insure an easy and efficient arrangement of his teaching program, and to provide in addition for study-room assignments and other duties necessary to carry on the work of the school.

MAKING A HIGH SCHOOL PROGRAM

INDICATION OF BLOCK NUMBERS UPON THE PUPIL'S SELECTION OF STUDIES SHEET

Upon the pupil's selection of studies sheet is next indicated the number of the block in which each of his various recitation sections occurs. To illustrate: Miss Y is a senior; she is taking a commercial program, and is in Class Section 4 *d*. She has elected English IV, Phonography and Typewriting II, Economics, and History IV. The block number of the *d* section of each of her subjects is as follows:

English IV *d*, Block 5

Phonography and Typewriting II *d*, Blocks 1, 2

Economics, Block 1

History IV *d*, Block 6

It will be noticed that two subjects, Economics and Phonography and Typewriting II, have been assigned to Block 1. This means a conflict. As there is but one section of Economics, Block 1 will have to remain against this subject. For Phonography and Typewriting II there is another class in Blocks 3 and 4. Her program as corrected, then, will read:

English IV, Block 5

Phonography and Typewriting, Blocks 3, 4

Economics, Block 1

History IV, Block 6

No block number is now repeated in this program, and there can therefore be no conflict.

A second illustration: Miss Z is in Section 2 *b*, but has failed in French. Her new subjects are English II, History II, Mathematics II, and Biology I, and she must repeat French I. A conflict might be feared, but the

MAKING THE SCHOOL PROGRAM

block distribution of the *b* section in each of these subjects is as follows :

English II *b*, Block 3
History II *b*, Block 4
French 1-2, 3, Block 6
Math. II *b*, Block 5
Biology I *b*, Block 2

There is no repetition of block numbers, therefore there can be no conflict in this program.

After one has become familiar with the block distribution for a given section, these block numbers can be indicated on the selection of studies blanks with very great rapidity, if there are no conflicts — as rapidly as two or three sheets a minute.

TABULATION AND EQUALIZATION OF RECITATION SECTIONS

After the block numbers have been indicated upon the pupils' selection sheets, the assignments upon all the selection sheets of the school are tabulated to make sure that recitation sections are of the same size. Recitation sections with but one letter assigned to them will be of about the same size, because they are made up of pupils from one class section only, and all class sections are of the same size. But recitation sections with two or more section letters may be of unequal size. To illustrate: In this year's sophomore class there are 14 class sections, lettered from *c* to *p*, inclusive, in which the pupils must choose a science, either Biology or Introductory Science. A sufficient number of pupils chose Biology to form 5 sections, and enough chose Introductory Science to form 9 sections. It takes, then, 14 class sections to supply a sufficient number of pupils to form 5 recitation sections in Biology I, or between 2 and 3 class sections to

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form one recitation section. Since 5 does not divide a whole number of times into 14, it is evident that three section letters will have to be assigned to four of these classes, and two to the fifth. These same 14 class sections yielded 9 Introductory Science divisions, and, again, two of the class-section letters will have to be assigned to five of those recitation sections, and but one to the other four. For this, and for other reasons, inequalities will always exist which require adjustments.

Such adjustments are made by changing the block number of the larger class to that of the smaller, and if the latter conflicts with some other subject in the block by scheduling this subject in some unused block.

After the tabulation of all recitation sections is completed, a glance will show what adjustments are necessary, and then the block numbers can be changed upon a sufficient number of the pupils' selection sheets to produce equality of divisions.

DETERMINATION OF HOME ROOMS AND STUDY ROOMS

There is not necessarily any connection between class sections and home rooms. One or more sections may be assigned to a home room, or sections may be scattered through several home rooms. College pupils, for instance, may be widely distributed over home rooms, to prevent anything like educational aristocracy in the school.

Many high schools leave the determination of study-room assignments until the school assembles in September. It is one of the advantages of the method of program making here described that the number of pupils each hour in study rooms can be closely approximated in June. Nearly all recitation sections are of the same size; if, from the total number of sections in a class, you subtract the recitation sections which are scheduled for any period,

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the difference will be approximately the number of sections which have no recitations during that period and for which study rooms must be provided.

SCHEDULE OF RECITATION AND STUDY ROOMS

A schedule of recitations must be furnished teachers before they can make out pupils' programs. This schedule is arranged by subjects, and it gives the block, section letters, days of the week, and room for every recitation section in the school. It does not contain the names of the teachers; for many reasons it is undesirable that these be put upon the recitation schedule. Below will be found for illustrative purposes a schedule of all recitations in Latin.

BLOCK	SUBJECT	SECTION	ROOM	MON.	TUES.	WED.	THURS.	FRI.
2	Latin I	<i>a</i>	104	2	6	4	1	5
5	Latin I	<i>b</i>	104	5	3	1	6	2
1	Latin I-2, 3, 4		414	1	5	3	2	6
3	Latin II	<i>a</i>	304	3	1	5	4	4
6	Latin II	<i>bc</i>	204	6	4	2	5	1
1	Latin III		401	1	5	3	2	6
4	Latin IV		306	4	2	6	3	3

In like manner a schedule of study rooms to take care of the sections which are known to be free can be made for each period in the week.

MAKING OUT OF PUPILS' PROGRAMS BY TEACHERS

To make out the pupils' programs the home-room teacher needs the following material:

- (a) The list of class sections (pages 5, 6) and home-room assignments (page 18)

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- (b) The schedule of recitation sections (page 19)
- (c) The schedule of study rooms (page 18)
- (d) The pupils' selection of studies sheets, with the assignment of recitations indicated upon them (pages 16, 17)
- (e) Daily program blanks (page 10)

With this material every teacher ought to be able not alone to make out the programs of the pupils who have already filled out the selection of studies blanks, but also to make out new programs for new pupils and to make new assignments of work for such changes in electives as may be necessary in September. For a new pupil, the teacher would first determine his class section and then assign him to such recitation sections as contained his class section letter.

Complete programs for all pupils expected in September should be filed in the office of the principal before the close of school in June. On the opening day in September, these programs are distributed to pupils. A part of the opening day will be needed for registration and for individual program adjustments. During the last part of this day, however, the school should go through its regular program on a shortened time schedule. This does not mean that some pupils go to some recitations, but that all pupils go to all recitations. The school should be able on the second day of the term to start full time upon a complete program.

TEACHERS' SCHEDULES OF WORK

In large high schools it ought not to be necessary to make out any teacher's schedule until the entire program is completed. In small high schools, with a large number of single classes, as has already been pointed out, the teacher's

schedule will have to be considered in the distribution of recitation sections among the blocks. To each teacher should be assigned, if possible, at least one recitation section composed of pupils who sit in his home room. The home-room teacher is the pupils' adviser, and he can more intelligently discharge the duties of this office if he knows his pupils intimately, which is more likely to be the case when they are in one of his recitation sections.

Teachers' schedules should be made out and given to teachers before the close of the school year. The teacher is then ready to take up his work on the opening day of school, and if he is assigned new work he has the summer vacation in which to prepare for it.

At the end of the book will be found a complete program of the Girls' High School of Boston, a study of which may make clear some details which have not been adequately illustrated in the text.

IV

SUMMARY

SOME of the advantages of a program of the type described in the preceding pages may be briefly summarized.

EFFICIENCY

It is highly efficient. In all large high schools there exists a very great variety of demands which the program must satisfy. The number of recitations assigned to different subjects varies from one to ten a week. Provision must be made for large classes in such subjects as Physical Training and Choral Practice, numbering from 100 to 300 pupils each. Great freedom of election is allowed, and subjects scheduled in any year of the course may be elected by pupils in any subsequent year of the course; for instance, seniors often elect first-year subjects. Promotion is by subjects, and provision must be made to allow pupils failing in a subject to repeat it in succeeding years. A program of this type ought to satisfy more than 99 per cent of these demands. In small high schools this percentage ought not to fall below 95.

A program of this type tends to become permanent from year to year. Variations in the size of classes will require corresponding changes in the number of class sections, and the addition or subtraction of letters that designate such sections; but unless there are radical changes in the curriculum itself, the distribution of sections indicated by the earlier letters of the alphabet will not be affected by such variations. This distribution may be perfected from year to year until it becomes nearly permanent. For the three upper classes, accurate forecasts of the number of recitation sections can be

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made as early as the middle of the preceding year. Unexpected increases or decreases in the freshman class will distribute themselves over all the sections of that class, changing slightly the number of pupils to a class, but not necessarily requiring the formation of new classes in September.

The initial formation of equal-sized class sections tends to produce equal-sized recitation sections. The participation of all teachers in the school in making the program means general intelligence in its administration.

THE PROGRAM IN RELATION TO EXPENSES

These are days of mounting expenses and increasing taxes for educational purposes. In the city of Boston school expenditures have increased from six million dollars in 1910 to more than twelve million for 1920, without anything like a proportionate increase in school population. Such an increase in expenditures emphasizes the need of maximum efficiency in school programs. In 1916 the city of Boston faced an apparent deficit of several hundred thousand dollars in its school budget, and retrenchment all along the line was necessary. When the high schools were asked to assume some forty thousand dollars of this retrenchment, a committee of headmasters was appointed to study the situation and see whether or not this money could be saved without reducing teachers' salaries or decreasing the efficiency of the schools.

There are fifteen high schools in the city — ten general high schools, two Latin, or college-fitting, schools, one for boys and one for girls, a high school of commerce for boys, a mechanic arts high school for boys, and a high school of practical arts for girls. So far as cost of instruction is concerned, all but the last two may be put into the same class.

These schools varied in size from about 600 pupils to 2300 pupils. The per capita cost of instruction varied from about \$55 to \$105 per pupil. This difference of \$50 per capita in cost of instruction, if applied to the smallest high school, amounted to \$30,000; if applied to the three largest schools, it amounted to more than \$100,000 each.

The committee of headmasters studied in detail the organization and programs of these fifteen high schools. They found that classes varied in size from less than 10 to more than 50 pupils, and the pupil-hour load of teachers from less than 500 to more than 1000. They found that the lower-cost schools were more efficiently organized than the higher. In the ten general high schools, 80 points were required for a diploma, 20 points a year for each of the four years. They found that pupils' programs varied in different schools from an average of 22 points a year to 25 points. The seriousness of this variation will be appreciated if it is understood that the schools with the 25-point average were giving 15 per cent more instruction to meet the same diploma requirements than the schools with the 22-point average, and were meeting them apparently with no greater degree of efficiency. These conditions can probably be duplicated in every large city in the United States.

Changes in organization were recommended which amply provided for the retrenchment desired, without decreasing the educational efficiency of the schools.

Even more striking is the increased cost of construction of school buildings. In 1910, in Boston, this cost was about \$7000 a room. In 1920 it was \$21,000. This cost also can be much reduced by means of a good school program. One has but to tabulate the recitation rooms not in use for each hour in the week in a high school to ascertain this fact. The poorly arranged program utilizes

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all the rooms some of the hours in the week, but has many unused rooms during other hours; the well-arranged program utilizes all the rooms all the time.

Added expense may come from delay in completing the organization of the school at the beginning of the school year. In large high schools the cost of maintenance runs from \$500 to \$1000 a day. A week lost in organization means added cost of instruction. With a good program, the school should be fully at work on the first or second day of school.

THE PROGRAM IN RELATION TO THE INTERESTS OF THE PUPILS

More important than all is the degree to which the program serves the interests of its pupils. High school pupils are constantly changing their objectives after they enter the high school. The pupil who starts upon a commercial course becomes ambitious to go to college. The pupil who starts upon a college course often finds it necessary to change to commercial work. Pupils become interested in special lines of work which they desire to pursue intensively, but which produce irregularities in their course. Too often such ambitions are thwarted because of the inflexibility of the school program. A good school program should possess sufficient flexibility to satisfy all such demands without causing undue loss of time to the pupil.

GENERAL IMPORTANCE OF THE PROGRAM

In conclusion it may be said that there is no single element which has a more important influence upon the economic management and the educational efficiency of a high school than its program. It is to the school what a time-table is to a railroad. It is the business of a railroad

to run trains. The first essential for the proper running of trains is a time-table that will prevent collision and that will serve properly the interests of its patrons. It is the business of a school to offer instruction. The first essential for such instruction is a program that will avoid conflicts between classes and that will serve properly the interests of pupils.



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